

Unit Author

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School Name	Westview High School
School City, State	Avondale, AZ

Unit Overview

Unit Title

Making Money

Unit Summary

The student will be using the following properties to simplify expressions with integer exponents: product of powers, power of a power, quotient of powers, negative and zero exponents. Students will utilize scientific calculators to analyze properties then solve same problems manually to learn greater understanding of those properties. Students will be using those skills to estimate possible investment returns with given companies and then compare those companies with respect to their goals in life.

Subject Area

Algebra 1

Grade Level

9th Grade

Approximate Time Needed

Two weeks

Unit Foundation

Habits of Learning Taxonomy

Persistence, Accuracy and Precision. Metacognition

Targeted Content Standards and Benchmarks

↳ Subject : Mathematics

↳ Subject/ Grade/ Domain : High School

↳ Strand 3: Patterns, Algebra, and Functions

Every student should understand and use all concepts and skills from the previous grade levels. The standards are designed so that new learning builds on preceding skills and are needed to learn new skills. Communication, Problem-solving, Reasoning & Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of mathematical strands.

↳ Concept 3: Algebraic Representations

Represent and analyze mathematical situations and structures using algebraic representations.

↳ PO 9. Multiply and divide monomial expressions with integer exponents

Student Objectives/Learning Outcomes

The students will evaluate monomial expressions using the product of powers property, the power of powers property, the quotient of powers property, the zero power property, and the negative power property.

The student will compare the possible returns for a given set of companies and determine which will best fit their goals.

Curriculum-Framing Questions

Essential Question

How would you make money?

Unit Questions

What type of investment would you choose? How would you rate different investment possibilities?

Content Questions

What do you do with exponents when the terms are multiplied? What do you do with exponents when a power is raised to another power? What do you do with exponents when the terms are divided? What is any monomial raised to the power of zero? What do you do when a term has a negative exponent? What is interest? How would you calculate the expected return on your investment?

Assessment Plan

Assessment Timeline

Before project work begins	Students work on projects and complete tasks	After project work is completed
Pre-Test (math)	Student/Teacher Conference	District Unit Test
K-W-L (money)	Checklist Updates	Added Questions For Project
Progress Checklist	Informal Questioning	
	Think-Pair-Share	

Assessment Summary

The unit will begin with a pre-test for the math content needed in this unit and then a KWL chart about what they know about investing money. At the end of the first day they will be given a checklist of the topics being discussed and eventually tested on during this unit. During the unit, the teacher will be implementing questioning strategies, Think-Pair-Share activities, student/teacher conferences and updating their checklist with them. At the end of the unit will be a district assessment where additional questions will be added regarding the real-life project involving investments.

Visual Ranking Elements

Visual Ranking Project Name (For the Visual Ranking workspace)

Making Money

Project Description (For the Visual Ranking workspace)

You are investing \$100 in one company. You will estimate how much money you will make at each of the given companies for 1 year, 5 years, and for 10 years. You will need to decide which company's investment strategy is optimal in your opinion. Do you go for the smaller, guaranteed return, or a risky, but possibly large return?

Prompt (For the Visual Ranking workspace)

Rank the companies based on your personal investment goals. Your 1st choice will go at the top and last choice will go at the bottom. Please explain your decisions for your 1st and last choice.

Sorting List (For the Visual Ranking workspace)

Ameritrade
Charles Schwab
Merrill Lynch
Morgan Stanley

Practice Ranking (For your future quick reference)

Teacher ID: Centner

Practice Team ID 1: Practice01

Password: Practice01

Practice Team ID 2: Practice02

Password: Practice02

Unit Details

Prerequisite Skills

The students will know how to add, subtract, multiply and divide. They will also know the order in which to perform these operations. These are the basic mathematical skills required for this unit.

Instructional Procedures

Day 1: The teacher will administer a pre-test consisting of the five properties of exponents. The Teacher will introduce and model the power of a product and power of a power properties. K-W-L chart of investing money. Teacher will handout progress checklist. Informal questioning throughout class period.

Day 2: The teacher will explain the Quotient of Powers property, the Zero Exponent Property, and the Negative Exponent property. The teacher will model the proper steps to evaluate and simplify these problems and guide the students through similar problems while asking curriculum-framing questions to assist the students' thinking skills. Once these properties are mastered, the students will check these off their list of tasks to be completed.

Day 3: The teacher will explain and demonstrate compound interest formula. Think-Pair-Share activity regarding what they recall of investing money. Informal questioning throughout. Update checklist.

Day 4: This is the day that everything comes together. The students will master all of the topics by this day. The teacher will pose many questions for the students in order to enhance their higher-order thinking abilities. The teacher will implement the Visual Ranking tool on this day. The students will be broken into groups and rank the companies in the order which they would invest in them. After the students rank the companies and compare their rankings, the teacher will explain what these correlations mean. After this, the students will complete the study guide for the unit assessment in class. While the students are completing these, the teacher will individually conference with students as needed. Once the study guides and conferences are complete, the teacher will go over the answers with the students to ensure mastery and correct answers from which to study.

Day 5: The teacher will answer questions from study guide and administer assessment.

Accommodations for Differentiated Instruction

Resource Student	Any student in need of additional resources can and will be paired up with another student in order to complete the project. These students may also be assessed per step of the problem or project rather than on the final answers or outcomes.
Nonnative English Speaker	Any nonnative English speaking students will be paired up with a partner that is bilingual so any concepts can be clarified beyond what the teacher or student are able to communicate with each other.

	Any gifted or advanced students can be given situations to solve that involve terms of partial years and percentages that are fractions or decimals. These different situations will challenge the student to examine the concepts deeper.				
Gifted Student					
Materials and Resources Required For Unit					
Printed Materials	Interest rates for the four investment firms for 1 year, 5 years, and 10 years.				
Supplies	None				
Technology - Hardware	Computer with internet access				
Technology - Software	None				
Internet Resources	Tiny url to student log-in page				
Other Resources	None				
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